

# 2012 Community Connections Program Impact and Process Evaluation Report

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Prepared for FirstEnergy Ohio Companies:

*The Cleveland Electric Illuminating Company*

*Ohio Edison Company*

*The Toledo Edison Company*

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# 1. Executive Summary

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During 2012, the Ohio operating companies The Cleveland Electric Illuminating Company (“CEI”), Ohio Edison Company (“OE”), and The Toledo Edison Company (“TE”) (collectively “Companies”) continued the Community Connections Program. The program was targeted to low-income residential customers, either directly or through landlords of such customers. The program was administered by Ohio Partners for Affordable Energy (“OPAE”), which worked with subcontractors to deliver weatherization services, energy efficient solutions, and customer education to participating low-income customers. For each participating customer, a walk-through audit of the residence was conducted to determine whether it was feasible and appropriate to install one or more weatherization or energy efficiency measures.

A total of 4,664 low-income households received energy efficiency services through the Community Connections Program in 2012. The numbers of participants in each service territory were as follows:

- CEI 2,663
- OE 1,527
- TE 474

Estimates of the gross energy savings (kWh) and peak demand reductions (kW) for the program in the three service territories are reported in Table 1.

*Table 1 Impact Evaluation Results*

<i>Utility</i>	<i>Ex Ante Expected Gross Savings</i>		<i>Ex Post Verified Gross Savings</i>	
	<i>Gross kWh</i>	<i>Gross kW</i>	<i>Gross kWh</i>	<i>Gross kW</i>
CEI	3,913,962	552	3,915,448	548
OE	1,978,437	304	1,890,564	250
TE	424,803	70	410,395	56
Total	6,317,202	926	6,216,406	854

The gross ex post kWh savings total shown in Table 1 reflect a realization rate of 99% percent, as determined by the ratio of verified gross kWh savings to expected gross

kWh savings. The small variance between the ex-ante and ex-post estimates can be attributed to the inability to calculate savings for insulation and air sealing measures. The large increase in the realization rate from 2011 can be attributed to the 100% verification rates for CFLs, refrigerators and freezers. The high verification rates are no doubt a result of the third-party QA/QC contractor brought in by the program to conduct follow-ups and on-sites with agencies. The replacement of refrigerators and freezers with ENERGY STAR® models and the installation of energy efficient lighting accounted for 99 percent of the verified gross kWh savings.

Results of the process evaluation indicate that overall, the Community Connections program appears to be running smoothly. The Community Connections program has been effectively integrated into a successful weatherization portfolio of programs implemented through OPAE. Customers appreciate the services provided by the Companies, and agencies appreciate the support they have received from the Companies and OPAE.

Interviewees report that the Companies' program staff is well trained, knowledgeable, and responsive. Likewise, OPAE and local agency staff have many years of experience administering and implementing low-income weatherization and energy efficiency programs. The program does face some challenges moving forward, most involving outside funding uncertainties which have and may continue to affect resources available to implement the program in Ohio. However, the program has already taken steps to address some of these issues, such as encouraging non-base-load measures and directing program focus to multifamily buildings.

## 2. Introduction and Purpose of Study

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Under contract with the Companies, ADM is performing measurement and verification (M&V) activities to confirm the energy savings and demand reduction being realized through the energy efficiency programs that the Companies are implementing in Ohio in 2012. The purpose of this report is to present the results of the impact evaluation effort undertaken by ADM to verify the energy savings and peak demand reductions that resulted from the program during 2012. Additionally, this report presents the results of the process evaluation of the program focusing on participant and program staff perspectives.

The impact evaluation component of this report estimates annual gross energy savings and peak demand reduction as framed by the following three research questions:

- How many energy efficient measures were installed through the program?
- What is the average annual kWh savings per installed measure?
- What is the average kW reduction per installed measure?

The goal of the process evaluation component was to determine how effective the program is in terms of customer satisfaction, customer awareness, and stakeholder interaction. The process evaluation was framed, therefore, by the following four research questions.

- How effective were the marketing efforts for the program? Which marketing methods were most effective?
- How well did the Companies' staff and the implementation team work together?
- Were the program participants satisfied with their experience??
- What changes can be made to the program's design or delivery to improve its effectiveness in future program years?

ADM administered a telephone survey to 60 program participants to verify receipt of energy efficiency measures and services claimed in the Community Connections Program records and to estimate customer satisfaction with the 2012 Community Connections Program. The survey measured satisfaction on a scale of zero to five for each of the services that customers received through Community Connections. The survey was also used to describe CFL installation practices among customers who received CFLs as well as to describe customer experiences with the contractors who performed the measure installations and the health and safety repairs.

Finally, in-depth interviews were carried out with a sample of Community Connections Program staff and with staff from OPAE, the implementation contractor. Additionally, a sample of contractors from the local community agencies that implemented the program was also interviewed. The objective of these interviews was to gather feedback from program staff and the implementer agencies to determine how the program was operating and to obtain suggestions for program improvements.

### 3. Description of Program

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The Community Connections Program provides weatherization measures, energy efficient solutions and client education to low income customers that receive electric services from The Companies' three Ohio operating companies or Electric Delivery Companies (EDCs): Cleveland Electric Illuminating (CEI), Ohio Edison (OE), and Toledo Edison (TE).

The Community Connections Program for 2012 was a continuation of the program that began in 2003. In the state of Ohio, there is a collaborative effort that leverages federal, state, utility, and other funding sources to provide weatherization and energy saving products and services to low income customers. OPAE, a trade association that also does low-income advocacy work, administers the Community Connections program and serves as the coordinator between utilities and the local agencies that perform the work. The program targets residential customers at or below 200% of federal poverty guidelines and/or landlords of residents eligible for one of the following:

- the Low Income Home Energy Assistance Program (LIHEAP), a federally-funded energy payment assistance program known in Ohio as HEAP
- the Percentage Income Payment Program (PIPP), an energy payment assistance program
- the Home Energy Assistance Program (HWAP), a federally-funded energy assistance program designed to increase the energy efficiency of dwellings owned or occupied by income-eligible Ohioans

OPAE allocates weatherization and energy efficient products and services funding to counties based upon the number of LIHEAP applications received. Homes are prioritized using a point system with households with elderly, disabled, and young children receiving priority points. If the utility is offering funding for the job, there are additional priority points given to the applicant.

In general, OPAE and local agencies do not market the program in the traditional sense. Rather, prioritized customers are identified and offered the services. Many agencies operate with a substantial on-going backlog of eligible customers – some agencies have customers waiting months, some up to a year, before receiving weatherization and energy efficient products and services.

Participation in the program is straightforward for customers. Most local agencies interviewed had on-staff “inspectors” who visit the customer’s home. Inspectors place a meter the customer’s refrigerator to monitor the electrical current and, if applicable, the freezer to log usage. The inspector talks with the client to understand energy use in the



home and to provide energy conservation education. As part of the discussion, the inspector identifies which lights in the home are used more than 2.5 or 3 hours per day. Light bulbs are replaced with compact fluorescent lamps (CFLs) for the fixtures that meet the minimum use criteria and refrigerators and/or freezers are replaced if the meter reads more than three kWh. The local agencies determine how best to leverage all of the funds (federal, state, utility, and other) available to the customer by taking into account what improvement and replacement equipment the customer needs. Other non-lighting measures that are administered through the program include: installation of insulation, air infiltration reduction (blower door test), and water heater measures (water heater wraps, low flow shower heads, and faucet aerators). Health and safety measures include roof repairs/replacement, electric wiring repairs and upgrades, stove replacement, and well pump replacement.

In addition, a certain proportion of funds (15 percent of the agency's overall budget) can be used for health and safety measures, such as roof repairs or electrical wiring work. The Companies also recently included a seasonal allowance spreadsheet in the CC system, which allows agencies to determine what shell or electric heating/cooling reducing measures the customer is eligible for based on their electric consumption.

*Table 2 Measures Installed through the 2012 Community Connections Program*

Energy Efficiency Measures: Lighting	Energy Efficiency Measures: Non-Lighting	Health/Safety and Education Measures
.03 nightlight	Central AC replacement	Electric repair/upgrade
.5 watt nightlight	Hot water pipe insulation	Roof repair/replacement
15 watt dimmable CFL	11-15 cu. ft. chest freezer	Customer energy education
15 watt globe CFL	16-18 cu. ft. upright freezer	Electric Stove Replacement
15 watt or less outdoor CFL	17-19 cu. ft. refrigerator w/top freezer	Well-Pump Replacement
16-20 watt floodlight	19-21 cu. ft. upright freezer	
16-20 watt outdoor CFL	19-22 cu. ft. refrigerator w/bottom freezer	
16-20 watt spiral CFL	20-22 cu. ft. refrigerator w/top freezer	
21 watt or above floodlight	20-23 cu. ft. side by side refrigerator	
21 watt or above outdoor CFL	24-26 cu. ft. side by side refrigerator	
21 watt or above spiral CFL	5-10 cu. ft. chest freezer	
3-way circle line CFL	9-15 cu. ft. upright freezer	
3-way dimmable torchiere CFL	Faucet aerator w/o shut-off valve	
3-way spiral CFL	Faucet aerator w/shut-off valve	
7-9 watt candelabra	Low flow showerhead	
9 watt globe CFL	R-11 sidewall insulation - brick veneer (average)	
9-15 watt spiral CFL	R-11 sidewall insulation - framed siding (average)	
	R-11 sidewall insulation - framed siding (difficult)	
	R-19 attic insulation (average)	
	R-19 attic insulation (difficult)	
	R-27 attic insulation (difficult)	
	Insulate water heater	
	Insulate band joist to R-11 (average)	
	Insulate band joist to R-11 (difficult)	
	Seal air leakage by 100 CFM50	

## 4. Methodology

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The methods used to calculate kWh savings and kW reductions for measures installed through the Community Connections Program are presented in this chapter. The methods used depended on whether or not a measure was a lighting measure. The methods used to calculate savings for lighting and non-lighting measures are therefore described separately in the following sections.

### Impact Evaluation Methods

#### 4.1 Verification of Number of Measures Installed

Quantities of measures installed through the Community Connections Program were verified through a telephone survey of a randomly-selected sample of program participants. The sample design used for selecting program projects allows estimates of savings to be determined with  $\pm 10\%$  precision at a 90% confidence interval for the program.

ADM developed a sampling plan enabling us to accomplish an unbiased review of a sample of participant records to determine the level of correlation between job-level savings reported by the program (i.e., *ex ante* expected savings as reported by the implementer through the AEG/Vision Database) and actual savings (i.e., *ex post* verified savings that were verified using the evaluation methodologies described in this EM&V Report).

The coefficient of variance for the non-zero savings sites in the population was 0.77. Given the relative skewness of that population, ADM utilized the Dalenius-Hodges' stratification methodology to cost-effectively achieve the required sampling precision.

ADM's stratified sampling plan utilized a minimum of two and a maximum of four strata per Contractor. Strata boundaries per Contractor were designed to minimize the coefficient of variance for all strata. Stratifying in this manner also affords the opportunity to identify any systemic differences between contractors.

The stratified sampling plan for this program is provided in Table 3 below. Employing this plan a review of a sample of 40 participant records was required. The 40 sampled participants were randomly selected from within the respective subset of records comprising each of the twenty-seven sampling strata – twenty strata for Ohio Edison, four strata for Toledo Edison and three strata for Cleveland Edison Illuminating. An additional 20 participants were surveyed for added rigor and precision. The twenty-seven sampling strata did not include the zero-savings strata, which by definition are

sites at which no energy efficiency measures were installed and thus will not be sampled.

*Table 3 Stratified Sampling Plan*

Strata	Count of Gross kWh	StdDev of Gross kWh	Average of Gross kWh	Min of Gross kWh	Max of Gross kWh	Sum of Gross kWh	CV	Weight	Contribution to Variance	Rank	Sample
ABCDOE	67	329	314	26	1,338	66,001	1.05	0.03	4.77E+08	15	1
ACCAACEI	101	426	418	25	1,251	124,908	1.02	0.05	1.83E+09	2	1
ACCAAOE	9	434	481	25	1,251	16,842	0.90	0.01	1.35E+07	26	1
CAADMUOE	11	560	525	25	1,251	9,974	1.07	0.00	3.45E+07	24	1
CACPCOE	61	509	553	32	1,725	81,263	0.92	0.03	9.50E+08	9	1
CAWMOE	21	514	575	26	1,251	19,539	0.89	0.01	1.11E+08	18	1
CCCAPOE	45	471	596	42	2,502	92,936	0.79	0.04	4.40E+08	16	1
CHNCEI1	304	91	404	42	685	122,958	0.22	0.05	7.55E+08	12	1
COADOE	28	421	473	25	1,422	38,292	0.89	0.02	1.34E+08	17	1
EANDCOE1	23	270	595	102	944	13,694	0.45	0.01	3.69E+07	23	1
ELLLCOE	12	373	831	167	1,251	16,617	0.45	0.01	1.84E+07	25	1
LCCAAOE	26	316	749	290	1,251	19,471	0.42	0.01	6.49E+07	21	1
MYCAPOE	50	446	392	42	1,251	40,809	1.14	0.02	4.86E+08	14	1
NCSBOE	90	480	672	42	1,376	60,485	0.71	0.03	9.14E+08	10	2
NHSTTE1	275	198	370	42	958	101,778	0.53	0.04	1.47E+09	4	2
NWOCATE	71	455	941	42	1,251	85,591	0.48	0.04	1.03E+09	8	1
OHCACOE1	112	530	1,369	84	1,988	153,349	0.39	0.06	1.14E+09	6	3
SCCAAOE	31	228	294	26	1,088	36,499	0.78	0.02	4.84E+07	22	1
SCDDOE	4	2,574	1,765	67	7,228	12,355	1.46	0.01	7.95E+07	20	1
TCAPOE	188	0	293	293	293	55,045	0.00	0.02	0.00E+00	27	1
WSOSOE1	49	207	576	2	972	28,235	0.36	0.01	1.01E+08	19	1
WSOSTE	61	402	430	0	1,370	81,708	0.94	0.03	5.93E+08	13	1
CHNCEI2	327	720	1,924	1,131	10,851	629,086	0.37	0.26	5.37E+09	1	10
OHCACOE2	61	645	2,752	2,007	4,277	167,897	0.23	0.07	1.52E+09	3	1
NHSTTE2	98	330	1,545	1,004	2,729	151,427	0.21	0.06	1.03E+09	7	1
WSOSOE2	34	1,097	2,003	1,140	6,288	68,105	0.55	0.03	1.35E+09	5	1
EANDCOE2	49	583	2,016	1,065	3,574	98,779	0.29	0.04	7.99E+08	11	1
<b>Total</b>						<b>2,393,644</b>			<b>2.08E+10</b>		<b>40</b>
<b>Precision at 90% CI</b>	<b>9.9%</b>										

Twenty site visits were also conducted for each of the random sample points within each strata identified by the above sampling plan.

## 4.2 Methods Used to Calculate Savings for Lighting Measures

As discussed in Chapter 1, the lighting measures are CFLs of different wattages that are directly installed. For each CFL measure, total kWh savings and total peak demand savings for that measure are determined as a product of the number of measures verified as being installed and the savings per measure. The methods used to determine per-unit kWh and peak demand savings are described in this section.

### 4.2.1 Calculation of kWh Savings per Lighting Measure

For each lighting measure, annual, first-year and lifetime kWh savings will be calculated through the following procedures.

#### *Calculation of Annual kWh Savings per Lighting Measure*

The lighting measures that are installed through the Community Connections Program are CFLs of different wattages that are directly installed. For these measures, kWh savings per measure are calculated per procedures set out in the Draft Technical Reference Manual (TRM).<sup>1</sup> As set out in the TRM,

$$\text{kWh Savings} = \Delta\text{kWh} = \left( \frac{\Delta\text{Watts}}{1,000} \right) * \text{ISR} * \text{Hours} * \text{WHFe}$$

where:

$\Delta\text{Watts}$  = CFL watts \* delta watts multiplier:

CFL watts = wattage of installed CFL, as verified

Delta watts multiplier = factor to adjust for change in baseline conditions resulting from Energy Independence and Security Act of 2007. For 2012, this multiplier was 3.25.

ISR = In Service Rate (i.e., TRM specifies a value of 0.81;

Hours = Average hours of use per year; (TRM specifies a value of 1,040 hours).

WHFe = Waste Heat Factor for energy (to account for cooling savings from efficient lighting).

TRM-specified values were used in the calculation of kWh savings, with Hours = 1,040 and WHFe = 1.07.

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<sup>1</sup> Vermont Energy Investment Corporation (VEIC), *State of Ohio Energy Efficiency Technical Reference Manual*, Prepared for Public Utilities Commission of Ohio, Draft of August 6, 2010.

Per the TRM, in 2012 the delta watts multiplier for CFLs of 21 watts or greater decreased from 3.25 to 2.06 (but remains 3.25 for all other wattages). ADM maintains that the appropriate baseline for calculating the delta watts in 2012 is the 100 watt incandescent bulb and thus the multiplier of 3.25 is still appropriate for the installation of 21 watt or greater CFLs. The argument for decreasing the wattage of the baseline incandescent was that 100 watt incandescent bulbs would no longer be available to consumers in 2012. However, an ADM Shelf Study of 137 stores evenly distributed throughout the Companies' service areas indicated that over 75% of stores still carried 100 watt incandescent bulbs as late as November 2012.

The value for ISR specified in the TRM is 0.81. However, this value was based on the analysis for Time of Sale measures. In previous program years measures that are directly installed were adjusted up per a recommendation from Duke Energy's evaluation of their CFL program and validation from Community Connections survey results. In PY2012, unlike previous years, survey results were similar to the TRM value of 0.81, but do not support the 0.89 reported by Duke Energy. Thus, ADM defaulted to the TRM value of 0.81.

#### ***Calculation of First-Year Savings per Lighting Measure***

First-year savings for lighting measures were calculated by determining the date of installation for measures and using this date to determine the percentage of annual savings that would be assigned as first-year savings.

#### ***Calculation of Lifetime kWh Savings per Lighting Measure***

Lifetime kWh savings for a measure were calculated by multiplying annual kWh savings by the deemed life for the measure, as determined in the TRM.

### **4.2.2 Calculation of Summer Coincident Peak Demand Savings per Lighting Measure**

Per the TRM, summer coincident peak demand savings per lighting measure are calculated according to the following formula.

$$\text{Summer Coincident Peak Demand Savings} = \left( \frac{\Delta \text{Watts}}{1,000} \right) * \text{ISR} * \text{WHFd} * \text{CF}$$

where:

$\Delta \text{Watts}$  = CFL watts \* delta watts multiplier:

CFL watts = wattage of installed CFL, as verified

Delta watts multiplier = factor to adjust for change in baseline conditions resulting from Energy Independence and Security Act of 2007. For 2012, this multiplier was 3.25.

ISR = In Service Rate (TRM specifies a value of 0.81);

WHFd = Waste Heat Factor for Demand (to account for cooling savings from efficient lighting);

CF = Summer Peak Demand Coincidence Factor

TRM-specified values for WHFd and CF were used in the calculation of summer coincident peak demand savings, with WHFd = 1.21 and CF = 0.11.

Per the TRM, in 2012 the delta watts multiplier for CFLs of 21 watts or greater decreased from 3.25 to 2.06 (but remains 3.25 for all other wattages). ADM maintains that the appropriate baseline for calculating the delta watts in 2012 is the 100 watt incandescent bulb and thus the multiplier of 3.25 is still appropriate for the installation of 21 watt or greater CFLs. The argument for decreasing the wattage of the baseline incandescent was that 100 watt incandescent bulbs would no longer be available to consumers in 2012. However, an ADM Shelf Study of 137 stores evenly distributed throughout the Companies' service areas indicated that over 75% of stores still carried 100 watt incandescent bulbs as late as November 2012.

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#### **4.3 Calculation of Savings for Non-Lighting Measures**

The following types of non-lighting measures were installed through the Community Connections Program in 2012:

- Refrigerator replacement
- Freezer replacement
- Attic insulation
- Wall insulation
- Air Infiltration Reduction ("Blower Door")
- Water Heater Wraps
- Low Flow Showerhead
- Faucet Aerators

For each such non-lighting measure installed in 2012, total kWh savings and total peak demand savings for that measure will be determined as a product of the number of measures verified as being installed and the savings per measure. The methods used to determine per-unit kWh and peak demand savings for the non-lighting measures are described in this section.

#### **4.3.1 Calculation of Energy & Peak Demand Savings for Refrigerator Replacements**

The procedures for calculating annual kWh savings and peak demand savings for replacement of a refrigerator for a low-income household are set out in the TRM. These procedures were used to calculate savings for the refrigerators replaced through the Community Connections Program. In 2012, modified values for UECexisting, UECES, and UECbase were used in the evaluation calculations, based on the information submitted in the November 3, 2010 Ohio TRM Joint Objections and Comments, Case Number 09-512-GE-UNC on the TRM.<sup>2</sup> The modified savings values used for the 2012 evaluation are reported in Table 4.

*Table 4 Modified Values for kWh and Peak Demand Savings to Evaluate Savings for Early Replacement of Refrigerators through the Community Connections Program*

	<b>Modified Savings Value Used for Evaluation</b>
Average Annual kWh Savings per Unit Remaining life of existing unit (8 years)	1,251 kWh
Average Summer Coincident Peak kW Savings per Unit Remaining life of existing unit (8 years)	0.192 kW

#### **4.3.2 Calculation of Energy & Peak Demand Savings for Freezer Replacements**

The TRM does not have procedures for calculating annual kWh savings and peak demand savings for replacement of a freezer for a low-income household. However, procedures are presented to calculate savings for freezers that are replaced in households that are not low-income.<sup>3</sup> The deemed savings values for kWh and kW savings for refrigerators and freezers reported in the TRM were used to calculate ratios

<sup>2</sup> November 3, 2010 Ohio TRM Joint Objections and Comments, Case Number 09-512-GE-UNC, 2010 Ohio Technical Reference Manual– Residential Market Sector, p. 7.

<sup>3</sup> Vermont Energy Investment Corporation (VEIC), State of Ohio Energy Efficiency Technical Reference Manual, Prepared for Public Utilities Commission of Ohio, Draft of August 6, 2010, pp. 23-24.



between the freezer and refrigerator savings values. These calculated ratios were applied to the modified savings values for replacement of refrigerators for low-income households to estimate the savings for replacement of freezers for such households.<sup>4</sup> The resulting savings values that were used in the 2012 evaluation are reported in Table 5.

*Table 5 Values for kWh and Peak Demand Savings to Evaluate Savings for Early Replacement of Freezers through the Community Connections Program*

	<b>Savings Value Used for Evaluation</b>
Average Annual kWh Savings per Unit Remaining life of existing unit (8 years)	1,131 kWh
Average Summer Coincident Peak kW Savings per Unit Remaining life of existing unit (8 years)	0.175 kW

#### **4.3.3 Calculation of Energy & Peak Demand Savings for Water Heater Wraps**

Program-level energy (kWh) and peak demand (kW) savings from installing water heater wraps will be calculated using the deemed savings values for this measure in the TRM.<sup>5</sup> The deemed annual energy savings value is 79 kWh per unit, and the deemed summer coincident peak demand savings is 0.009 kW.

#### **4.3.4 Calculation of Energy & Peak Demand Savings for Low Flow Showerheads**

Program-level energy (kWh) and peak demand (kW) savings from installing low-flow showerheads will be calculated using savings values based on information submitted in the Joint Utility Comments on the TRM.<sup>6</sup> A value of 244 kWh saved per gallons per minute was used in 2012 for the calculation of energy savings. Per the

<sup>4</sup> For freezer kWh savings, calculation is  $(1244/1376) \times 1251 = 1,131$  kWh. For freezer kW savings, calculation is  $(0.20/0.22) \times 0.192 = 0.175$  kW

<sup>5</sup> VEIC, State of Ohio Energy Efficiency Technical Reference Manual, Draft of August 6, 2010, pp. 131-132.

<sup>6</sup> November 3, 2010 Ohio TRM Joint Objections and Comments, Case Number 09-512-GE-UNC, 2010 Ohio Technical Reference Manual— Residential Market Sector, p. 11.

values given in the TRM,<sup>7</sup> it is assumed that installation of a low flow showerhead would change the water flow from 2.87 gpm to 2.0 gpm. Thus, the annual energy savings value used was 212 per showerhead, and the summer coincident peak demand savings used was 0.0237 kW.

#### **4.3.5 Calculation of Energy & Peak Demand Savings for Faucet Aerators**

Program-level energy (kWh) and peak demand (kW) savings from installing faucet aerators were calculated using savings values for this measure calculated in the TRM.<sup>8</sup> Values calculated in the TRM for a 1.5 gpm installation were used in 2012. The annual energy savings value used was 24.5 kWh per unit, and the deemed summer coincident peak demand savings used was 0.0031 kW.

#### **4.3.6 Savings Measures not calculated**

Savings were not calculated for four insulation measures (wall insulation, hot water pipe insulation, band joist insulation, attic insulation installation, and air infiltration reduction). The value of the savings for these five measures comprises approximately 1% of total program ex-ante savings and ADM would have had to request additional data from the Companies to calculate savings that was not readily available.

ADM did not attempt to estimate savings for these five additional measures because the savings would have been negligible and it would not have been an efficient use of evaluation resources.

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<sup>7</sup> VEIC, State of Ohio Energy Efficiency Technical Reference Manual, Draft of August 6, 2010, pp. 93-96.

<sup>8</sup> VEIC, State of Ohio Energy Efficiency Technical Reference Manual, Draft of August 6, 2010, pp. 89-92.

#### **4.4 Process Evaluation Methods**

The process evaluation component was designed to determine customer satisfaction with the Community Connections Program. This was accomplished using a telephone survey with the random sample of customers selected from the stratified sampling plan detailed in section 4.1.

The process evaluation component also included in-depth interviews with various program implementation stakeholders such as the Companies program management, OPAE managers and OPAE subcontractors.

##### ***Customer Telephone Survey and Site Visits***

The telephone survey was designed to verify customer receipt of the various measures indicated in the Community Connections database – particularly CFLs, refrigerators and freezers. Additionally, the survey collected data about CFL installation, energy education, and customer satisfaction with the program. The telephone survey was completed by a random sample of 60 Community Connections participants during February, March, and early April 2013. To add an extra level of rigor to the analysis, approximately 20 site visits were also conducted by ADM field technicians.

##### ***In-Depth Interviews with Program and Implementation Contractor Staff***

In-depth interviews were conducted in March and April of 2013 with program and implementation contractor staff. The interviews addressed the following researchable issues:

- How well has the team (i.e., the Companies' staff and Implementation staff) worked together?
- How well is the Community Connections program working? What changes should the program implement in order to improve effectiveness? What were the issues and concerns about implementing the program in 2012? What issues remain unresolved? What were the lessons learned in implementing the program in 2012?
- How effective is the collaboration between the Companies and the local agencies? How effective is the interaction between OPAE and the local agencies?
- Do agencies have any concerns about program implementation and their role in the program? Do local agencies feel they have sufficient staffing resources to deliver the program? Is the training to agencies sufficient? If not, what training and education support is needed?

- Are there additional needs of the participants that could be met through the Community Connections program? Should additional measures be considered? Are there any groups not reached by the Community Connections program that also have financial and weatherization needs?
- How effectively has the Companies' staff been able to monitor and administer the program?

## 5. Detailed Evaluation Findings

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The numbers of low-income households that received energy efficiency services through the Community Connections Program in 2012 in the service territories of the Companies are shown in Table 6.

*Table 6 Number of Participants in Community Connections Program during 2012*

<b>Utility</b>	<b>Number of Participants</b>
CEI	2,663
OE	1,527
TE	474
Total Companies	4,664

### Impact Evaluation Findings

Table 7 shows the quantities of energy efficient lighting measures that were installed for these participants through the Community Connections Program and Table 8 shows the quantities of energy efficient non-lighting measures that were installed for the participants in 2012. Table 9 shows the number of health and safety measures and the number of energy education consultations that were conducted under the Community Connections Program in 2012.

Applying the methods described in Chapter 4 produced estimates of savings per unit on a measure-by-measure basis. Multiplying the quantities in Tables 7 and 8 by the per-measure savings estimates produced, the program-level estimates of energy savings are reported in Table 10 and the peak demand reductions are reported in Table 11.

*Table 7 Quantities of Energy Efficient Lighting Measures Installed per Operating Company*

<b>CFL Category</b>	<b>CEI</b>	<b>OE</b>	<b>TE</b>	<b>Total</b>
Install 9-15 watt spiral CFL	10,153	12,583	2,485	25,221
Install 16-20 watt spiral CFL	5,770	2,106	296	8,172
Install 9 watt globe CFL	220	292	4	516
Install 15 watt dimmable CFL	27	187	0	214
Install .5 watt nightlight	6	91	3	100
Install 21 watt or above spiral CFL	5,014	1,594	674	7,282
Install 3-way circle line CFL	65	104	7	176
Install 3-way spiral CFL	99	617	14	730
Install .03 nightlight	0	10	0	10
Install 7-9 watt candelabra	346	1,550	85	1,981
Install 15 watt globe CFL	1,053	782	10	1,845
Install 15 watt or less outdoor CFL	47	223	0	270
Install 16-20 watt outdoor CFL	3	338	0	341
Install 21 watt or above outdoor CFL	116	132	0	248
Install 3-way dimmable torchiere CFL	15	10	1	26
Install 16-20 watt floodlight	3	123	0	126
Install 21 watt or above floodlight	8	103	0	111
Total	22,945	20,845	3,579	47,369

*Table 8 Quantities of Non-Lighting Efficiency Measures Installed per Operating Company*

	<b><i>CEI</i></b>	<b><i>OE</i></b>	<b><i>TE</i></b>	<b><i>Total Companies</i></b>
Refrigerator replacement	1,707	621	192	2,520
Freezer replacement	583	140	8	731
Faucet aerator	67	292	17	376
Low flow showerhead	67	174	8	249
Central air conditioning replacement	0	7	1	8
Water heater wrap	0	49	0	49
Total Non-Lighting Measures	2,424	1,283	226	3,933

*Table 9 Quantities of Health & Safety and Education Measures per Operating Company*

	<b><i>CEI</i></b>	<b><i>OE</i></b>	<b><i>TE</i></b>	<b><i>Total Companies</i></b>
Electrical Repairs	176	135	30	341
Roof Repairs	6	22	7	35
Replace Electric Stove	1	8	0	9
Replace Well-Pump	1	0	0	1
Energy Education Consultations	251	893	346	1,490
Total Health & Safety and Education Measures	435	1,058	383	1,876

Table 10 Estimates of Annual kWh Savings by Utility and Measure

	<b>CEI</b>	<b>OE</b>	<b>TE</b>	<b>Total Companies</b>
<b><u>Energy Efficiency Measures: Lighting</u></b>				
9-15 watt spiral CFL	386,655	479,196	94,636	960,486
16-20 watt spiral CFL	321,155	117,219	16,475	454,849
9 watt globe CFL	5,800	7,699	105	13,604
15 watt dimmable CFL	1,186	8,217	0	9,404
.5 watt nightlight	9	133	4	146
21 watt or above spiral CFL	308,453	98,060	41,463	447,977
3-way circle line CFL	6,284	10,054	677	17,014
3-way spiral CFL	8,236	51,332	1,165	60,733
.03 nightlight	0	9	0	9
7-9 watt candelabra	9,122	40,866	2,241	52,229
15 watt globe CFL	46,271	34,362	439	81,072
15 watt or less outdoor CFL	2,065	9,799	0	11,864
16-20 watt outdoor CFL	167	18,813	0	18,980
21 watt or above outdoor CFL	7,136	8,120	0	15,257
3-way dimmable torchiere CFL	1,573	1,049	105	2,727
16-20 watt floodlight	167	6,846	0	7,013
21 watt or above floodlight	492	6,336	0	6,829
Total Annual kWh Savings, Lighting	1,104,772	898,110	157,311	2,160,193
<b><u>Energy Efficiency Measures: Non-Lighting</u></b>				
Refrigerator replacement	2,135,457	776,871	240,192	3,152,520
Freezer replacement	659,373	158,340	9,048	826,761
Central air conditioning replacement		9,250	1,732	10,982
Low Flow Showerhead	14,204	36,888	1,696	52,788
Faucet Aerators	1,642	7,154	417	9,212
Water Heater Wrap	0	3,950	0	3,950
Total Annual kWh Savings, Non-Lighting	2,810,676	992,453	253,084	4,056,213
Total Annual kWh Savings, All Measures	3,915,448	1,890,564	410,395	6,216,406



Table 11 Estimates of Peak Demand kW Reductions by Utility and Measure

	CEI	OE	TE	Total Companies
<b><u>Energy Efficiency Measures: Lighting</u></b>				
9-15 watt spiral CFL	40.90	50.68	10.01	101.59
16-20 watt spiral CFL	33.97	12.40	1.74	14.20
9 watt globe CFL	0.61	0.81	0.01	0.40
15 watt dimmable CFL	0.13	0.87	0.00	0.32
.5 watt nightlight	0.00	0.01	0.00	0.01
21 watt or above spiral CFL	32.62	10.37	4.39	15.26
3-way circle line CFL	0.66	1.06	0.07	0.92
3-way spiral CFL	0.87	5.43	0.12	3.55
.03 nightlight	0.00	0.00	0.00	0.00
7-9 watt candelabra	0.96	4.32	0.24	1.07
15 watt globe CFL	4.89	3.63	0.05	2.57
15 watt or less outdoor CFL	0.22	1.04	0.00	0.69
16-20 watt outdoor CFL	0.02	1.99	0.00	1.13
21 watt or above outdoor CFL	0.75	0.86	0.00	0.55
3-way dimmable torchiere CFL	0.17	0.11	0.01	0.18
16-20 watt floodlight	0.02	0.72	0.00	0.37
21 watt or above floodlight	0.05	0.67	0.00	0.31
Total Peak Demand Reduction, Lighting	116.85	94.99	16.64	143.14
<b><u>Energy Efficiency Measures: Non-Lighting</u></b>				
Refrigerator replacement	327.74	119.23	36.86	483.84
Freezer replacement	102.03	24.50	1.40	127.93
Central air conditioning replacement	-	5.72	0.68	6.40
Low Flow Showerhead	1.59	4.12	0.19	5.90
Faucet Aerators	0.21	0.91	0.05	1.17
Water Heater Wrap	0.00	0.45	0.00	0.45
Total Peak Demand Reduction, Non-Lighting	429.98	150.83	39.00	619.81
Total Peak Demand Reduction, All Measures	548.42	249.92	55.83	854.17

## Process Evaluation Findings

Process evaluation findings are reported topically in this section, bringing together findings from both the telephone surveys, site visits and the in-depth interviews to provide a comprehensive view of program implementation.

### 5.1 Customer Receipt of CFLs, Refrigerators and Freezers

The main energy efficiency measures for which savings can be claimed by the Companies involve the installation of CFLs, ENERGY STAR® refrigerators, and ENERGY STAR® freezers.

#### *Receipt and Installation of CFLs*

During the walk-through energy audit of a customer's residence, the contractor identifies which lights in the home are used more than 2.5 to 3 hours per day. These higher-use lights are selected to be replaced by energy efficient CFLs. The lights being replaced are usually less energy efficient, standard incandescent light bulbs.

The telephone on-site interviews verified that 100% of those customers who were supposed to receive CFLs – according to program records -- actually did receive CFLs from the contractors who were hired to provide and install CFLs. In the case of CFLs final conclusions were based on verification of findings from the initial interviews (phone and on site). The verification interview involved the use of probes to explore whether the measures were delivered and installed by contractors partnering with the Companies. To the extent feasible, the interviews were carried out with the same person who was present at the audit or installation.

The median number of CFLs actually received by customers was 7, most often installed in bedrooms, living rooms and kitchens. Contractors directly installed approximately 89% of the CFLs that customers received from the program.

Approximately 72% of CFLs that were received by program participants were installed at the time of the phone survey. CFLs that were installed and later removed by customers comprised about 11% of the CFLs received, according to the survey. Generally, these were CFLs that were broken or burned out when received or installed. The remaining 17% of the CFLs received by customers had not been installed at the time of the survey interview. The most common reason for not installing the CFLs was that the customer believed they did not need to install them yet. This suggests that the uninstalled CFLs were those that the contractor had given to the customer to install, who rather than install them, stored the CFLs for later use. The dominant customer logic for installing CFLs was to wait until a currently installed light had burned out before

replacing it with a CFL. Many also mentioned that the CFLs did not fit in their light fixtures.

### ***Receipt and Installation of Refrigerators and Freezers***

Contractors metered the electricity consumption of the customer's old refrigerator or freezer during the walk-through home energy audit to identify units that needed to be replaced. Refrigerators and freezers found to be wasteful in their energy consumption were scheduled for replacement with an ENERGY STAR® model.

All of those surveyed or visited by an ADM field technician, who were supposed to receive a replacement refrigerator according to program records, received a refrigerator. Seventy-seven percent of the replaced refrigerators were top-freezer models, followed by side-by-side configuration models (22%), and lastly bottom-freezer models (1%).

Similarly, all of those surveyed or visited by an ADM field technician, who were supposed to receive a replacement freezer according to program records, received a freezer. Forty-three percent of the replaced freezers were upright freezer models and 57% of the replaced freezers were chest freezer models.

## **5.2 Customer Satisfaction**

Survey respondents were asked about their satisfaction with the equipment and services they had received through the Community Connections Program. Ratings were on a scale of 1-5, where 1=Very Dissatisfied and 5= Very Satisfied. The results are described in the table below.

*Table 12 Satisfaction with Community Connections Equipment and Services*

Measure	N	Mean	Std. Deviation	Range
CFLs	35	4.83	0.382	4-5
ENERGY STAR® Refrigerator	14	4.64	0.633	3-5
ENERGY STAR® Freezer	4	4.75	0.500	4-5
Community Connections	60	4.75	0.540	3-5

### ***Satisfaction with CFLs***

Over 90% of the respondents were satisfied with the CFLs they received from the program. Participants commented that they “liked that they last longer and are brighter” than standard incandescent light bulbs and are more energy efficient. Participants who were not satisfied with the CFLs claimed that the installation contractor had given them burned out bulbs or broken bulbs that did not work.

### ***Satisfaction with ENERGY STAR® Refrigerators***

As with the CFLs, over 90% of the respondents were satisfied with the ENERGY STAR® refrigerators they received from the program to replace their old, less energy efficient models. The average satisfaction rating was 4.64 on the 1 to 5 point scale.

### ***Satisfaction with ENERGY STAR® Freezers***

ENERGY STAR® freezers received very high satisfaction ratings from the survey respondents: 4.75 on the five point scale.

### ***Satisfaction with the Community Connections Program***

Ninety-five percent of the survey respondents indicated they were satisfied with the Community Connections Program. The average satisfaction rating was 4.75 on the 1 to 5 point scale. Comments received from satisfied customers included the following:

- The program was good overall
- I haven't had problems, I'm very happy.
- It helped a lot and the people were great.
- It was the best thing they (the Companies) ever did for me.
- I really needed a fridge and I couldn't afford one so this helped a lot.
- There were savings on my bill.

### ***Participant Satisfaction as Reported by the Community Action Agencies***

Agencies report that they receive excellent feedback from the customers they serve through the Community Connections and other programs. Some agencies reported that they received thank you letters from customers who are thrilled with the services they have received. During the interview, one staff member related the summary of a letter the agency had just received that day: prior to participation in the Community Connections program, the client simply did not use the lights in her home as she could not afford her electricity bill. After staff came in and replaced all of her lights with compact fluorescents, the client stated that she *"still doesn't use them all at once, but it's nice to know she can if she wants to."* Several agencies reported that the measures resulting in the biggest satisfaction impact are refrigerators; many clients are ecstatic that they are able to replace their inefficient and faulty appliance with a new, energy-saving refrigerator that keeps their food cold. One agency noted that it has fielded calls from customers in tears, who are so grateful for the services they have received through the program.

In addition, several agencies related their satisfaction with the program in general, their hope that the program continues, and the important service it provides communities in Ohio. One noted: *“Honestly I don’t know what some people would do without it.... I feel really good about being partners with OPAE and The Companies.”*

### **5.3 Interviews with Program and Implementation Staff**

Tetra Tech, working in conjunction with ADM, conducted in-depth interviews with staff from the Companies, OPAE, and local agencies. Interviews were conducted between March 24, 2013 and April 8, 2013. Tetra Tech completed interviews with three of the Companies staff and two OPAE staff. In addition, Tetra Tech completed seven interviews with participating community action agencies. In total, Tetra Tech conducted ten in-depth interviews with 12 interviewees for this qualitative assessment.

The objective of these interviews was to gather feedback from implementation staff and agencies to determine how the program is operating and to collect suggestions for program improvements.

#### ***Program Staff Administration and Oversight***

The Companies contract with OPAE to administer the Community Connections program. This arrangement is mandated by the Public Utilities Commission of Ohio. The Companies program staff reports that the working relationship with OPAE is very good.

The Companies program staff use the Community Connections (CC) database system for tracking, reporting, and invoicing by the local agencies. The CC system is discussed in more detail below.

#### ***Program Staffing and Training***

Overall, there were no immediate concerns expressed about the qualifications of program and implementation staff. Each group of interviewees (The Companies’ Staff, OPAE, and local agencies) expressed respect for the knowledge and expertise of all involved.

Local agency contractors receive substantial training through OPAE, who has established performance standards that govern the program. Local agencies also provide training to their staff. Many interviewees reported longevity working with low-income and weatherization programs, with several stating that they had been involved with some type of low-income or weatherization program for over a decade. Therefore, most staff were very familiar with these programs and their requirements. Only one minor training request was brought up by one agency regarding the new addition to the CC system, the seasonal allowance spreadsheet. This staff member expressed satisfaction with the CC system, the training received, and the interactions with OPAE

and the Companies regarding it, but stated: *“Just like we had a little training for the CC system, we could use a little training for that sheet as well.”*

A concern brought up by several interviewees was that staffing levels at local agencies have been reduced due to the expiration of the federal stimulus funding<sup>9</sup>. In addition, the state of Ohio changed the way funding was distributed for the HWAP program last year; a request for proposals was distributed and agencies now needed to compete for funding “territories.” This resulted in uncertainty among some agency staff regarding funding availability for weatherization programs. Because of this uncertainty, program implementation staff expressed concern about the downsizing at many agencies: *“Some of the agencies coming out of ARRA laid off too many people. Then when the state announced they were going to compete HWAP, plus we didn’t get any DOE money so funding was lower, they were risk averse in that they decided to try and do it with the staff they have, which is not enough people in some of the agencies’ cases.”*

When asked, most agencies replied that the expiration of ARRA funding had affected their agency in some way, with three agencies stating it severely reduced their resources, production, or staffing levels while others noted it had not had much of an impact on their day-to-day operations. Two of the three agencies reported laying off large proportions of their staff, with one saying: *“After ARRA was ended, we had 18 people and now we’re down to 11.”* However, this staff member felt they still had the resources to implement their programs adequately.

#### ***Communications with the Companies, OPAE, and Local Agencies***

OPAE serves as the program administrator and directly interacts with the Companies program staff, other utility program staff, and the local agencies. Overall, both OPAE and the Companies report that communications are excellent between their respective organizations. One staff member noted: *“It’s been a very positive relationship, we work well together. We are all focused on what is best for the customers.”*

Agencies have few, if any, direct communication with the Companies. If there is communication, it tends to be regarding the Companies Community Connections tracking system. Agency interviewees state that Companies are very responsive to their tracking system questions and issue resolution. Additionally, agency staff were unanimous in their praise of OPAE. Several agency staff called out particular OPAE staff by name as being exemplary. One staff member at an agency brought up OPAE’s quick responses, saying, *“They’ve helped us out tremendously. Any questions you can ask them, they answer immediately.”* Another, when asked if communications with OPAE work well, stated, *“Absolutely. Any time I’ve needed help they’ve been holding my hand.”*

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<sup>9</sup> The American Recovery and Reinvestment Act of 2009

### **Health and Safety Measure Funding**

An area of concern mentioned by most interviewees was the change to the Community Connections health and safety funding levels. Originally, health and safety allocation was unlimited; in 2011, it was reduced to 30 percent of total program budget per agency; and, in 2012 it was reduced to 15 percent of the total program budget per agency. This reduction in program funding is being driven by the current Ohio Commission rules regarding what utilities are able to claim toward their savings goals. These rules do not allow utilities to claim savings for health and safety measures even though this work may be required before additional weatherization services can be performed. Health and safety measures involve roof repairs and replacement, electric wiring repairs and upgrades, and furnace repairs. If a house roof requires repair, then insulation measures cannot be implemented. If home wiring is faulty, new heating and cooling units cannot be installed.

Implementation staff report that this downshift in health and safety funding to 15 percent of the overall program budget has worked well, especially in conjunction with the disappearance of ARRA funding. One staff reported that in 2011, when the program was able to use 30 percent of the program budget for health and safety, *“[The Companies] understood that we had all this ARRA [funding] and we needed the health and safety to avoid walk-aways.”* Now, with the ARRA funding gone and The Companies’s health and safety funding reduced to 15 percent, program staff report that the reduction *“seems to be working well; that [reduction] has encouraged them to look more broadly on other ways to use the funding.”*

However, six of the seven community action agencies interviewed expressed at least some concerns with the reductions in health and safety funding. Five of these six agencies report needing to walk away from homes that they otherwise could serve due to this limitation. When asked whether they have needed to walk away from homes due to the health and safety reduction, one stated: *“Absolutely. It was a huge, huge hit.”* This agency noted that The Companies was their only source of health and safety funding: *“The Companies is it. Used to be able to do some of it through the Ohio Housing Trust Fund; now that we don’t have that we’re pretty much dead in the water.”*

Another agency interviewee noted that the Public Utilities Commission of Ohio (PUCO) and Ohio utility companies needed to come to a better consensus and understanding of the importance of health and safety funds within low-income weatherization and energy efficiency programs. *“I’m a big proponent that if their funding is used in the house, they should partake in the total energy credits of the house, and a conversion factor should be established through the PUCO and state regulations.”* stated this interviewee. This interviewee went on to state that without health and safety funding, many energy efficiency projects cannot move forward; worse, a house with severe electrical problems could burn down. This agency interviewee felt strongly that health and safety projects were key in both keeping the low-income population in Ohio warm and healthy but also opened doors to energy efficiency projects in homes that otherwise would not be served. While not speaking specifically to health and safety measures, implementation



staff also felt that The Companies should receive credit for the collaborative effort they participate in with other utilities and state funding to provide a whole-house approach, as this approach results in *“synergistic savings.”*

However, several agencies noted that while the reduction in health and safety funds were not ideal, they were making do and finding ways to be more creative with funds. *“It’s always nice to have more health and safety [funding],”* said one agency. *“With the state money, you’re very limited. Makes it really hard when you go to a client’s house and you don’t have enough money to cover the health and safety issues and you end up having to walk away.... Obviously it’s better to have 30 percent, [but] it’s not really changed anything.”* Another agency noted that the reduction had not changed their day-to-day operations as they had always tended to focus more on energy efficiency measures and kept health and safety funding to between 15 and 30 percent, even when it was unlimited. This agency also noted that the health and safety funding reduction *“forced us to get a little more creative in how we address those issues.”*

Finally, there was some confusion about whether the 15 percent of the budget available for health and safety measures applied to the budget allocated or the budget used. One agency interviewee believed that they could use 15 percent of their used budget throughout the year, and felt this created too much uncertainty around the total amount of health and safety funds available. This interviewee went on to say, *“They have it to the point of where it’s not really 15 percent - it’s 15 percent of what you SPENT. At the end of the year, if you finally spent your whole grant, you can take 15% of that for health and safety.”* However, another agency reported that it was the original allocated budget, and not what was spent, that determined the 15 percent for health and safety measures.

#### ***Quality Assurance and Quality Control***

Late in 2012, the program brought on a third-party QA/QC contractor to conduct follow-ups and on-sites with agencies. While it is still a new process, program staff reports that initial feedback has been positive; agency inspectors have done a good job relating to customers and making them feel comfortable. Program staff report that the only challenge for the QA/QC contractor has been discerning between work done for the Community Connections program and work done for HWAP or other utility programs, especially if the QA/QC contractor has recommendations or corrections for work not done with The Companies funding.

As an additional quality control measure, the Community Connections tracking system has data field requirements that must be completed before invoices can be submitted to ensure that all data needed to report and compute savings are collected from the agency staff.

#### ***Marketing and Educational Materials***

In general, the Community Connections program is not directly marketed to customers in Ohio. Most agencies report that customers hear of the program through word of



mouth, or are funneled to the program through HEAP or HWAP applications. In fact, several agencies reported backlogs of customers, some stretching up to a year in order to receive weatherization services; others reported shorter backlogs.

However, one agency staff member felt additional marketing would be useful and was interested in joint marketing with the Companies. This staff member indicated the organization did not have the time or skills to do so themselves: specifically saying, *“I run three programs, I get bombarded and I’m not computer savvy to be making it all.”* In addition, another agency member stated that they do market directly to customers, through their website, fliers, and community events such as health fairs. This agency reported that they do not tend to have a backlog.

In addition, the Companies staff reported that they have developed educational materials that they distributed to community action agencies late in 2012. These materials contained information on energy-saving tips and behavior changes. When asked about these materials, nearly all agencies replied that they distribute them to field staff to give to customers and clients. Only one agency was not aware the program offered educational materials. Most agencies found these materials to be useful, with one saying: *“It’s always easier to have someone become a client if they have something tangible in their hands.”* Another stated: *“I think the reading materials that they provide are wonderful.”* A few agencies noted that not all clients care about the educational materials and saving energy: *“Some folks feel like, I’m on PIPP and I only pay this amount every month anyways.”* However, this staff member also noted that was just a percentage of people, and the materials are reaching others who do care about saving energy.

#### ***Program Operations and Implementation Improvements***

When asked about general program operations, most agencies did not have any complaints. When asked about any program administration challenges or difficulties with program requirements, one agency staff replied: *“No, not at all, it goes smooth for me.”* Agency staff generally did not report any issues with program requirements or administrative tasks. As stated above, several OPAE and agency staff members report long tenures working with low-income populations and weatherization programs in Ohio, resulting in considerable experience at the helm of these programs, although some agencies did report downsizing or expertise loss due to funding changes.

#### ***Additional Needs***

When asked if they felt that there were any groups the program was not currently serving, most agencies did not have any complaints. However, one population identified by implementation staff as one holding future potential for the program are low-income customers living in multifamily buildings. Given the changes in program health and safety funding allocations and the size of the Companies program, one staff member noted that multifamily units hold the most potential for achieving savings and reaching participants. However, this staff member noted that some agencies have had difficulties

approaching this market, as the housing stock is very different and many agencies do not have experience working with it.

Most agencies interviewed did not report vast experience working with large multifamily units in the past, but several reported they are looking into ways to work with them in the future, and a few have large multi-unit buildings in their pipeline. Agency staff did identify several challenges to working with multifamily building, especially large ones. Most prevalent were administrative barriers, such as confirming eligibility for all residents in a building and scheduling appointments for that many units. In light of these challenges, OPAE reported developing a working group to help agencies figure out how to approach and provide services to the multifamily sector.

#### ***Current and Future Challenges***

The reduction in federal and state weatherization assistance funding places more emphasis on using utility funds to complete projects, but with the reduction in health and safety funding, fewer weatherization services may be possible. Therefore, projects are more likely to be restricted to replacement of refrigerators and freezers and the installation of energy efficient lighting and, although utilities are able to claim all of those savings, the greater savings possible through complete weatherization may not occur. However, program staff noted that while in the past the program operated more as a base-load program, they are now encouraging agencies to use more Community Connections funding for heating and cooling measures. One staff member stated: *“So we are seeing a shift and we are encouraging that shift to use our funding for electric heating and cooling reducing measures. Some of the funding has gone away, and so has some of the state funding. I think OPAE has been encouraging agencies to look at our program as a bigger funding source for some of those other measures and encouraging agencies to do that as well.”*

### **5.4 Data Tracking in the Community Connections Program**

Data tracking for the Community Connections program is completed through two databases: The CC System and the Vision/AEG System.

#### ***The CC System***

The CC System was developed by the Companies to track their low-income programs as well as for invoicing. Since contracting with OPAE, the CC system was implemented across the State in June 2011. OPAE, local agencies, and two other electric utilities contracting with OPAE are now using the tracking system. The Companies' program staff reports that the CC System has quality controls built in to assure required data are entered before invoices can be processed. One agency reported this as a benefit to the system, saying: *“If something is wrong, it tells you.”* The use of this system by OPAE,

utilities, and agencies creates opportunities for statewide benchmarking of programs across utilities.

Overall, respondents are happy with the system. Many users of the system report that it is easy to use, the Companies' program staff is very responsive to questions and issues, and that the training provided was adequate.

While they found the CC system worked well, several agencies did point out that there were inefficiencies and redundancy created by the fact that often agencies need to enter client information into multiple systems. Sometimes four to five systems are used, and much of the same customer data and information are entered into each. Examples of other systems mentioned include the Department of Development's OCEAN system, as well as other utility tracking systems (such as gas utilities). Some agencies found this more burdensome than others; others replied that they were simply used to the process of entering information in multiple databases. One implementation staff member noted that for many agencies, tracking multiple sources of funding is normal: *"It is just standard for our network, to use three sources of money on every home."* However, most agencies acknowledged that having one tracking system, or at least multiple systems that "talk" to each other, would make their operations easier and quicker. While it is unrealistic for the Companies alone to create a single IT infrastructure for the entire state, they have taken steps to prepare a file transfer, "data dump", for the Cleveland Housing Network to help mitigate the issue.

#### ***The AEG System/SSRS***

The AEG System, also known as the SQL Server Reporting System, is the over-arching tracking database for the Companies' energy-efficiency programs. The AEG system is "fed" by the CC System according to a business rule that requires an installed measure to be on an approved invoice before be transferred to the AEG System.

There does exist a slight difference between the 2012 data set found in the AEG System and the 2012 data set found in the CC System as a result of the following business rule that was created to deal with slow billing/invoicing agencies. The original and real install date of the measure is included in the CC System; however, this install date may not transfer exactly to the AEG System depending on when the measure first appears on an approved invoice. For example, if a measure was installed in 2012 but not on an approved invoice until after January 31, 2013, the installed date sent to AEG was January 1, 2013. In other words, for some measures actually installed in 2012, AEG is capturing savings in 2013 to align the savings from particular measures with the costs to more accurately reflect cost-effectiveness of the program. Thus, when a final data set is compiled by querying both systems according to install dates that fall within

the particular program year, there may be a small variances based on measures that fall into the category of the above example. The same process occurred for 2011/2012: some measures may have been installed in 2011 but are counted in 2012 for protocol savings purposes because the invoice containing the 2011 measure was received too late in 2012 for savings calculation purposes.

Because savings associated with the measures falling into the category described above are quite negligible and because ADM wishes to remain consistent in the use of the AEG System as the final data set for the evaluation of the Companies' programs, the 2012 evaluation of the Community Connections program was completed according the AEG System's final data set. The CC System was consulted for ancillary details about measures included in the AEG System data set.

## 6. Conclusions and Recommendations

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The following sections provide ADM conclusions and recommendations pertaining to program performance and improvement.

### 6.1 Conclusions

A total of 4,664 low-income households received energy efficiency services through the Community Connections Program in 2012. The numbers of participants in each service territory were as follows:

- CEI 2,663
- OE 1,527
- TE 474

The overall evaluation results for estimated gross energy savings (kWh) and peak demand reductions (kW) for the program in the three service territories are summarized in Table 13 below.

*Table 13 Impact Evaluation Results*

<i>Utility</i>	<i>Ex Ante Expected Gross Savings</i>		<i>Ex Post Verified Gross Savings</i>	
	<i>Gross kWh</i>	<i>Gross kW</i>	<i>Gross kWh</i>	<i>Gross kW</i>
CEI	3,913,962	552	3,915,448	548
OE	1,978,437	304	1,890,564	250
TE	424,803	70	410,395	56
Total	6,317,202	926	6,216,406	854

The gross kWh savings total shown in Table 13 reflect a realization rate of 99 percent, as determined by the ratio of verified gross kWh savings to expected gross kWh savings. To the best of ADM's present knowledge, difference in analytic methods do not appear to account for the observed differences in savings estimates since the Companies and ADM used the same deemed savings values for calculating kWh

savings. The explanation for the variance in savings estimates relates to the fact that insulation and air sealing measures could not be accurately calculated without requesting more information for the Companies and/or the program's sub-contractors. The large increase in realization rate from previous program years can be attributed to the 100% verification rates for CFLs, refrigerators and freezers. The replacement of refrigerators and freezers with ENERGY STAR® models and the installation of energy efficient lighting accounted for 99 percent of the verified gross kWh savings.

## 6.2 Process Findings

The following section summarizes the key findings from the process evaluation.

- **The expiration of ARRA funding, along with continued uncertainty around other programs such as HWAP, has resulted in some agency staffing reductions, leaving the remaining staff short-handed and overwhelmed at some community action agencies.** Agency staff report that the amount of American Recovery and Reinvestment Act of 2009 (ARRA) funds presented a challenge to agencies, in the sense that many of them needed to ramp up resources and production to meet the budget spend when funds were initially allocated. However, when these funds expired in 2012, many agencies faced the additional challenge of then ramping down, yet maintaining enough staff and resources to sustain their remaining utility and state programs. In addition, the method by which the state weatherization program (HWAP) funds were distributed changed to a “compete” or RFP process. This meant that agencies needed to compete with others for the counties they wished to serve, adding to the uncertainty surrounding funding. Several agencies reported laying off large proportions of their staff: *“After ARRA was ended, we had 18 people and now we’re down to 11.”* Another agency staff member stated that while relatively new to the agency, this staff member knew the agency had downsized its staff over the years.

Program implementation staff also expressed concern about the downsizing at many agencies: *“Some of the agencies coming out of ARRA laid off too many people. Then when the state announced they were going to compete HWAP, plus we didn’t get any DOE money so funding was lower, they were risk averse in that they decided to try and do it with the staff they have, which is not enough people in some of the agencies cases.”* Another agency staff mentioned the uncertainty caused by the new method by which HWAP funds were being distributed; the interviewee stated that they had been unsure until very recently whether they had won the bids for the all, some, or none of counties they wished to serve. However, one agency staff reported that although her agency had laid off nearly half of their staff, the interviewee still felt that they had enough resources to administer their current programs.

- **Several interviewees report that multifamily buildings hold significant savings potential for the program, but some agencies have had difficulty serving this market.** Staff report that given the changes in program health and safety funding allocations and the size of the The Companies program, multifamily units hold the most potential for achieving savings and reaching participants. However, one implementation staff member noted that some agencies have had difficulties approaching this market, as the housing stock is very different and many agencies do not have experience working with it. This staff member noted that they are currently implementing a multifamily working group to help agencies better learn how to serve this market.

Most agencies interviewed did not report vast experience working with large multifamily units in the past, but some reported they are looking into ways to work with them in the future, and several have large multi-unit buildings in their pipeline.

- **While program and implementation staff report that the reduction in health and safety funding from The Companies has been working well, several agencies expressed that the reduction has limited the amount of customers they are able to serve.** Because of the inability to claim savings for health and safety projects, over the past several years, The Companies has reduced the amount of the overall budget allocable for health and safety funding, such as new roofs or electrical wiring improvements, down to 15 percent of the overall program budget. Implementation staff report that this has worked well, especially in conjunction with the disappearance of ARRA funding. One staff reported that in 2011, when the program was able to use 30 percent of the program budget for health and safety, *“[The Companies] understood that we had all this ARRA [funding] and we needed the health and safety to avoid walk-aways.”* Now, with the ARRA funding gone and The Companies’s health and safety funding reduced to 15 percent, program staff report that the reductions *“seems to be working well; that [reduction] has encouraged them to look more broadly on other ways to use the funding.”*

However, six of the seven community action agencies interviewed expressed at least some concerns with the reductions in health and safety funding, some more than others. *“It’s a terrible change I think,”* said one agency. *“It’s walking away from clients that are in desperate need. They contact us for a reason.”* Of those six agencies, five report needing to walk away from homes that they otherwise could serve due to this limitation. When asked whether they have needed to walk away from homes due to the health and safety reduction, one stated: *“Absolutely. It was a huge, huge hit.”* Another said they would like to have more health and safety funding, but it had not yet affected their production levels: *“It’s always nice to have more health and safety. With the state money, you’re very limited. Makes it really hard when you go to a client’s house and you don’t have enough money*



*to cover the health and safety issues and you end up having to walk away... Obviously it's better to have 30 percent, [but] it's not really changed anything."*

Finally, there was some confusion about whether the 15 percent of the budget available for health and safety measures applied to the budget allocated or the budget used. One agency believed that they could use 15 percent of their used budget throughout the year, and they felt this created too much uncertainty around the total amount of health and safety funds available. However, another agency reported that it was the original allocated budget, and not what was spent, that determined the 15 percent for health and safety measures.

- **Overall, interviewees believe The Companies has done a good job providing Community Connections program support to OPAE and the local agencies.** While agency staff reported limited direct interactions with The Companies staff, all reported positive relationships, and helpful and responsive support was available from The Companies if needed. Most reported interacting with The Companies staff mainly relating to the Community Connections (CC) database system. One agency staff member reported, *"They are very very pleasant people to work with."* Only one interviewee stated that they would like additional support, relating to the new seasonal allowance spreadsheet, which allows agencies to determine what shell or electric heating/cooling reducing measures the customer is eligible for based on their electric consumption, which has been added to the CC system.
- **The Companies program staff and local agencies report excellent working relationships with OPAE.** The Companies reported very positive working relationships with OPAE, with one staff member saying: *"It's been a very positive relationship, we work well together. We are all focused on what is best for the customers."*

Additionally, agency staff were unanimous in their praise of OPAE. Several agency staff called out particular OPAE staff by name as being exemplary. One staff member at an agency brought up OPAE's quick responses, saying, *"They've helped us out tremendously. Any questions you can ask them, they answer immediately."* Another, when asked if communications with OPAE work well, stated, *"Absolutely. Any time I've needed help they've been holding my hand."*

- **Agency staff report the educational materials provided by The Companies have been helpful and useful.** All agencies but one reported being familiar with the program's educational materials and distributing them to their clients during home visits. Most agencies reported positive feedback regarding the materials, with one saying: *"It's always easier to have someone become a client if they have something tangible in their hands."*



- **The Community Connections program is effectively reaching eligible customers; however, federal and other funding cuts will likely reduce the number of customers served.** Most agencies felt the program was still adequately serving the low-income population in Ohio. However, some implementation and agency staff noted their production has reduced since the expiration of ARRA funding.

### 6.3 Recommendations

Overall, the program appears to be running smoothly. Interviewees report that the Companies program staff is well trained, knowledgeable, and responsive. Likewise, OPAE and local agency staff have many years of experience administering and implementing low-income weatherization and energy efficiency programs. There are, however, a few recommendations offered for consideration.

- **Identify ways to support agencies in providing Community Connections services to their communities despite HWAP and other funding uncertainties.** With recent uncertainties surrounding state and federal funding, such as the expiration of ARRA and the new bid requirement for HWAP funding distribution, agencies may be facing a loss of expertise and resources as their agencies downsize. Also, few agencies directly market the Community Connections program; HWAP is often cited as a key means of funneling customers into the Community Connections program. If agencies lose this funding, some may need additional support from OPAE and the Companies in pulling customers into the Community Connections program. While some agencies will likely not need this support, some agencies may benefit from joint marketing or other implementation support from OPAE and the Companies if their funding and resources shift.
- **Clarify whether health and safety funding is calculated based on budget allocated or budget used with agencies.** As there was some confusion among agencies about whether the 15 percent of the budget available for health and safety measures applied to the budget allocated or the budget used, it may be worthwhile to circulate an email or memo clarifying how agencies should be calculating the amount of health and safety funding available to them per year.
- **Continue to explore and support implementing energy efficient solutions at multifamily buildings through the program.** Given the changing funding landscape and the size of the Community Connections program, multifamily units may give the Community Connections program the best “bang for the buck” in terms of achieving energy savings. OPAE reports that they are currently developing a working group to work with agencies to help them better reach out

to and provide services to multifamily units, and given most agencies' lack of experience working with large multifamily buildings this will likely be useful in introducing agencies to this sector.

- **Consider a brief training with agencies on the new CC system seasonal allowance spreadsheet.** While only one agency brought up this as a training need, as it is relatively new there may be other agencies that have not yet used it and would benefit from a brief training on it. In addition, a training on this spreadsheet may be a good opportunity to discuss ways to use Community Connections funding for non-base load measures (i.e., refrigerators, CFLs, etc.) such as electric heating and cooling reducing measures.
- **Continue to explore options for claiming additional savings resulting from the Companies' participation in the whole-house approach taken by the portfolio of low-income state and utility programs in Ohio.** For low-income homes across Ohio, the Community Connections program often works in conjunction with other utility and state programs to provide whole-house, synergistic benefits and more effective energy savings. In addition, the decrease in health and safety funding, while seen as necessary, has resulted in walk-aways and customers who are therefore not able to receive energy efficiency or weatherization solutions. If possible, continue to explore options to account for the synergistic energy savings provided by this collaboration, including the energy-efficiency benefits achieved by health and safety funding.

## 7. Appendix A: Required Savings Tables

Tables showing measure-level participation counts and savings for the Community Connections Program were provided in Chapter 5. This appendix provides two additional tables summarizing savings results.

- Table 14 reports the first-year pro-rata ex post kWh savings by utility and measure.
- Table 15 reports the ex post lifetime kWh savings by utility and measure.

*Table 14 First-Year Pro-Rata Ex Post (2012) Energy Savings (kWh)*

	<i>CEI</i>	<i>OE</i>	<i>TE</i>	<i>Total, Companies</i>
Lighting	563,847	487,582	78,619	1,130,048
Refrigerator replacement	1,141,145	404,491	136,054	1,681,690
Freezer replacement	384,435	78,730	5,472	468,637
Central air conditioning replacement	-	1,133	-	1,133
Water Heater Wrap	-	858	-	858
Low Flow Showerhead	18,811	1,181	28,089	18,811
Faucet Aerators	939	3,920	256	5,115
Total First-Year Energy Savings, All Measures	19,750	977,895	28,345	3,306,292

*Table 15 Ex Post Lifetime Energy Savings (kWh)*

	<i>CEI</i>	<i>OE</i>	<i>TE</i>	<i>Total, Companies</i>
Central Air Conditioning Replacement	-	46,250	8,660	54,910
Water Heater Wrap	-	19,750	-	19,750
Refrigerator Replacement	17,083,656	6,214,968	1,921,536	25,220,160
Freezer Replacement	5,274,984	1,266,720	72,384	6,614,088
CFL Lighting Installed	8,838,176	7,184,883	1,258,488	17,281,547
Low Flow Showerheads	71,020	184,440	8,480	263,940
Low Flow Faucet Aerator	8,208	35,770	2,083	46,060
Total Lifetime Energy Savings All Measures	31,276,044	14,952,782	3,271,630	49,500,456

## 8. Appendix B: Surveys and Interview Guides

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### 2012 Participant Phone Survey

#### 2012 Community Connections Program Participant Telephone Survey

EDC	Code
Illuminating Company	1
Ohio Edison	2
Toledo Edison	3

A1 *Hello, my name is (interviewer name), and I am calling on behalf of (name of EDC), your electric utility company. May I speak with (name of respondent)?*

Yes 01

No 02 [IF NOT AVAILABLE, ASK FOR ANOTHER ADULT FAMILIAR  
WITH HOUSEHOLD'S PARTICIPATION IN COMMUNITY  
CONNECTIONS PROGRAM]

A2 *I'm with ADM Associates, an independent research firm. We are speaking with households that participated in the (name of EDC's) Community Connections Program. You will receive a \$10 gift card for participating in this survey.*

*Through this program you would have received energy efficient light bulbs called compact fluorescent lights or CFLs for short; or you might have had your refrigerator or freezer replaced with an energy efficient Energy Star refrigerator or freezer; or you might have received electrical wiring or roof repairs. Do you recall participating in this program?*

Yes 01 [SKIP TO A6]

No 02

Don't Know 98

Refused 99 [THANK AND TERMINATE]

A3 *You may have received these services through a subcontractor from another company. It is possible you worked with an energy auditor or inspector from the Ohio Home Weatherization Assistance Program (HWAP), or the Electric Partnership Program (EPP), or the Warm Choice*

*or House Warming Program, or the Home Energy Assistance Program (HEAP). Do you recall participating in Community Connections through any of these other programs?*

Yes	01	[SKIP TO A6]
No	02	
Don't Know	98	
Refused	99	[THANK AND TERMINATE]

A4 *Is it possible that someone else in your household would be familiar with the items you received through this program?*

Yes	01	
No	02	[THANK AND TERMINATE]
Don't Know	98	[THANK AND TERMINATE]
Refused	99	[THANK AND TERMINATE]

A5 *May I speak with that person?*

Yes	01	[RECYCLE THROUGH A2 & A3 WITH NEW RESPONDENT]
No	02	[THANK AND TERMINATE]
Don't Know	98	[THANK AND TERMINATE]
Refused	99	[THANK AND TERMINATE]

A6 *Great, thank you. First I want to assure you that I'm not selling anything. I just want to ask your opinion about the program. Your responses will be kept confidential. For quality and training purposes, this call will be recorded. May I take a few minutes of your time to talk with you now about the equipment and services you received and how that has worked out for you?*

Yes	01	[PROCEED WITH INTERVIEW]
No	02	[THANK AND TERMINATE]
Refused	99	[THANK AND TERMINATE]

A7. Would you be interested in scheduling a follow-up home visit with ADM associates as an additional step of verification of the measures installed at your home? You will receive an additional 10.00 gift card for your courtesy at the time of the appointment.

Yes	01	[SCHEDULE INTERVIEW]
No	02	[PROCEED WITH INTERVIEW]
Refused	99	[PROCEED WITH INTERVIEW]

Appointment Date \_\_\_\_\_

Appointment Time \_\_\_\_\_

Confirmed Address \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## THE INTERVIEW

Name of Respondent: \_\_\_\_\_

Premise ID Number: \_\_\_\_\_ Phone Number: \_\_\_\_\_

1. *I would like to start by asking you about the equipment and services you received through the program. Our records indicate that you received the following items from Community Connections. Please tell me if you received these items or not.*

[READ ITEMS THAT WERE RECEIVED ACCORDING TO RECORDS  
RECORD ANSWER INDICATED BY RESPONDENT]

	Yes	No	DK	NA
a. Compact fluorescent light bulbs, called CFLs	01	02	98	99
b. Energy Star Refrigerator	01	02	98	99
c. Energy Star Freezer	01	02	98	99
d. Energy Saving Showerheads	01	02	98	99
e. Faucet Aerators	01	02	98	99
f. Electrical Repairs	01	02	98	99
g. Roof Repairs	01	02	98	99
h. Energy Education	01	02	98	99
i. Water heater pipe insulation	01	02	98	99
j. Seal Air Leakage / Duct Sealing	01	02	98	99
k. Water Heater	01	02	98	99
l. Attic Insulation	01	02	98	99
m. Side Wall Insulation	01	02	98	99
n. Night Lights	01	02	98	99
o. Central AC Replacement	01	02	98	99
p. Torchiere	01	02	98	99

### CFLS

[ASK Q2-Q9 IF Q1A = 1 OR Q1P=1]

2. *You indicated that you received CFLs from the program.*
- Our records indicate you received \_\_\_\_\_ CFLS (INSERT # FROM RECORDS)*
  - As best as you can recall, is that number correct or did you receive a different number of CFLs?*

Number of CFLs in record is correct	01	[GO TO Q4]
Received a different number of CFLs	02	
Don't know	98	[GO TO Q8]
Refused	99	[GO TO Q8]

3. *What is the correct number of CFLs that you received then?*

Number of CFLs received: \_\_\_\_\_

4. Of the \_\_\_\_\_ CFL bulbs you received, how many [READ LIST; ENTER NUMBER FOR EACH]

- a. Are currently installed? \_\_\_\_\_
- b. Were installed and removed? \_\_\_\_\_
- c. Have never been installed? \_\_\_\_\_

[ASK Q5 IF Q4B > 0]

5. Why were some CFLs removed? (SELECT ALL THAT APPLY)

- CFL broke or burned out 01
- CFL not working as needed (e.g., lights too dim) 02
- Using them in another home or at work 03
- Storing them for later use 04
- Gave them away 05
- Returned them to the program 06
- Other (specify) 07

a) Other reason: \_\_\_\_\_

[ASK Q6 IF Q4C > 0]

6. Why were some of the CFLs never installed? [RECORD VERBATIM RESPONSE]

7. As best you can recall, how many of the CFLs received through the program -- that are currently installed -- are installed in each of the following room locations?

Room Location	Code	# CFLs Installed
Bedrooms	1	
Bathrooms	2	
Living Room	3	
Kitchen	4	
Entry Way	5	
Dining Room	6	
Garage	7	
Basement	8	
Den	9	
Stairway	10	
Office	11	
Other (specify)	12	

Note: Total should not exceed number in Q4a

a) Specify other room location: \_\_\_\_\_

8. *Please tell me which of the following statements is most correct.*  
*STATEMENTS; ALLOW ONE RESPONSE]*

[READ

An auditor or inspector <u>installed all</u> of the CFLs	01
An auditor or inspector <u>installed some</u> of the CFLs	02
An auditor or inspector <u>did not install any</u> of the CFLs	03
Don't know	98
Refused	99

Comments: \_\_\_\_\_

9. *What type of lighting equipment did the CFLs replace? [SELECT ONE]*

Standard incandescent light bulbs	01
Other CFLs	02
Both incandescent light bulbs and CFLs	03
Other (specify)	04
Don't Know	98
Refused	99

a) Other lighting: \_\_\_\_\_

### REFRIGERATOR REPLACEMENT

[ASK Q10-11 IF Q1B = 1]

10. *You indicated that your refrigerator was replaced. Can you tell me the door style configuration of the new refrigerator that was installed? Is it a...* [READ RESPONSE OPTIONS]

Top-freezer refrigerator model	01	
Bottom-freezer refrigerator model	02	
Side-by-Side refrigerator model	03	
Don't know	98	[PROMPT TO LOOK AT THE UNIT]
Refused	99	

11. *Our records indicate that your new refrigerator was installed \_\_\_\_\_. Is this correct?*

Yes	01	
No	02	Record Month _____
Don't recall	98	[GO TO Q12]
Refused	99	[GO TO Q12]



## FREEZER REPLACEMENT

[ASK Q12-13 IF Q1C = 1]

12. *You indicated that your freezer was replaced. Can you tell me the type of new freezer that was installed? Is it an...* [READ RESPONSE OPTIONS]

Upright freezer model	01	
Chest freezer model	02	
Don't know	98	[PROMPT TO LOOK AT THE UNIT]
Refused	99	

13. *Can you tell me the month in which the new freezer was installed? What month was that?*

*Month of installation:* \_\_\_\_\_

Don't recall	98	[GO TO Q14]
Refused	99	[GO TO Q14]

## ENERGY EDUCATION

[ASK Q14-Q18 IF Q1H = 1]

14. *You indicated that you received energy education from the program. Did the auditor or inspector provide you with information about ways you can save energy in your home?*

Yes	01	
No	02	SKIP TO Q19
Don't recall	98	SKIP TO Q19
Refused	99	SKIP TO Q19

15. *How was this information provided to you?* [DO NOT READ; SELECT ALL THAT APPLY]

Auditor discussed ways to save energy with customer	01
Auditor provided customer energy education materials	02
Other (specify)	03

Specify Other: \_\_\_\_\_

16. *Because of the information you received from the auditor or inspector, do you feel you now know more about how to save energy in your home?* [SELECT ONE]

Yes, know more now	01
No, about the same as before	02

Don't know	98
Refused	99

17. On a scale of 1 to 5 where 1 is not at all useful and 5 is extremely useful, how useful was the energy education information you received from the auditor or inspector?

\_\_\_\_\_ [ENTER 01 TO 05]

[ASK Q18 IF Q17 ]

18. What information could the auditor have provided that would have been more useful to you?  
RECORD VERBATIM RESPONSE

## HOME IMPROVEMENT RETROFITS

[ASK Q20-Q22 IF Q1L=01]

### Attic Insulation

19. Please rank-order **the top three factors** in your decision to have additional attic insulation installed in your home. Select 1 for the most important factor; 2 for the second-most important factor; and 3 for the third most important factor.

- |  |   |   |   |
|--|---|---|---|
| a. The retrofit recommendation seemed credible             |   |   |   |
| b. Wanted to improve home comfort                          | 1 | 2 | 3 |
| c. Impact of attic insulation on reducing my electric bill | 1 | 2 | 3 |
| d. Other (Specify: _____)                                  | 1 | 2 | 3 |

20. Using the satisfaction scale below, please indicate how satisfied you are with the following aspects of the attic insulation that was installed:

VD      D      N      S      VS      DK

- Insulation performance after installation
- Home Comfort level after installation
- Savings on electric bill

[ASK Q22 IF Q21 = VD or D]

21. Why weren't you satisfied with this aspect of your insulation after the installation?

[ASK Q23-Q25 IF Q1M=01]

### Wall Insulation

22. Please rank-order **the top three factors** in your decision to have additional wall insulation installed in your home. Select 1 for the most important factor; 2 for the second-most important factor; and 3 for the third most important factor.

- |   |   |   |   |
|---|---|---|---|
| a. The retrofit recommendation seemed credible            | 1 | 2 | 3 |
| b. Wanted to improve home comfort                         | 1 | 2 | 3 |
| c. Impact of wall insulation on reducing my electric bill | 1 | 2 | 3 |
| d. Other (Specify: _____)                                 | 1 | 2 | 3 |

23. Using the satisfaction scale below, please indicate how satisfied you are with the following aspects of the wall insulation that was installed:

- |  | VD | D | N | S | VS | DK |
|--|----|---|---|---|----|----|
| a. Insulation performance after installation |    |   |   |   |    |    |
| b. Home comfort level after installation     |    |   |   |   |    |    |
| c. Savings on electric bill                  |    |   |   |   |    |    |

[ASK Q25 IF Q24 = VD or D]

24. Why weren't you satisfied with this aspect of your insulation performance after the installation?

[ASK Q26-Q28 IF Q1J=01]

### Duct Sealing

25. Please rank-order **the top three factors** in your decision to have the ducts in your home sealed. Select 1 for the most important factor; 2 for the second-most important factor; and 3 for the third most important factor.

- |  |   |   |   |
|--|---|---|---|
| a. The retrofit recommendation seemed credible         | 1 | 2 | 3 |
| b. Wanted to improve home comfort                      | 1 | 2 | 3 |
| c. Impact of sealed ducts on reducing my electric bill | 1 | 2 | 3 |
| d. Other (Specify: _____)                              | 1 | 2 | 3 |

26. Using the satisfaction scale below, please indicate how satisfied you are with the following aspects of the duct sealing job that was performed:

- |  | VD | D | N | S | VS | DK |
|--|----|---|---|---|----|----|
| a. Home comfort level after installation |    |   |   |   |    |    |
| b. Duct performance after installation   |    |   |   |   |    |    |

c. Savings on electric bill

[ASK Q28 IF Q27 = VD or D]

27. *Why weren't you satisfied with this aspect of your ducts after the duct sealing job?*

### SATISFACTION

*The final set of questions is about your satisfaction with the equipment you received and other aspects of the program. Using a scale of 1 to 5 where:*

Very dissatisfied	01
Somewhat dissatisfied	02
Neither satisfied nor dissatisfied	03
Somewhat satisfied	04
Very satisfied	05

*please tell me how satisfied you are with:*

[ASK Q29 IF Q1A = 1]

28. *...the CFLs you received through the program?*

\_\_\_\_\_ [ENTER 01 TO 05]

[ASK Q30 IF Q1B = 1]

29. *...the Energy Star refrigerator you received through the program?*

\_\_\_\_\_ [ENTER 01 TO 05]

[ASK Q31 IF Q1C = 1]

30. *...the Energy Star freezer you received through the program?*

\_\_\_\_\_ [ENTER 01 TO 05]

[ASK Q32 IF Q1F = 1]

31. *...the electrical repairs you received through the program?*

\_\_\_\_\_ [ENTER 01 TO 05]

[ASK Q33 IF Q1G = 1]

32. ...the roof repairs you received through the program?

\_\_\_\_\_ [ENTER 01 TO 05]

[ASK Q34 IF Q29 OR Q30 OR Q31 OR Q32 OR Q33 <3]

33. Why weren't you satisfied with (type of product or service)?

[RECORD VERBATIM RESPONSE AND IDENTIFY ITEM(S) CUSTOMER IS DISSATISFIED WITH]

34. In the course of participating in the <UTILITY> program, how often did you contact <UTILITY> or program staff with questions?

Never	01	[ASK Q37]
Once	02	
2 or 3 times	03	
4 times or more	04	
Refused	98	
Don't know	99	

35. How did you contact them? [CHECK ALL THAT APPLY]

Phone	01
Email or Fax	02
Letter	03
In person	04
Refused	98
Don't know	99

36. And how satisfied were you with your communications with <UTILITY> and program staff?  
Would you say you were:

Very dissatisfied	01	[ASK Q38]
Somewhat dissatisfied	02	[ASK Q38]
Neither satisfied nor dissatisfied	03	[ASK Q38]
Somewhat satisfied	04	[ASK Q39]
Very satisfied	05	[ASK Q39]
Refused	98	[ASK Q38]
Don't know	99	[ASK Q38]

**37. Why were you dissatisfied?**

38. *Have you noticed any savings on your electric bill since installing your new [MEASURE\_GENERIC]/removing your old [APPLIANCE]?*

Yes	01	[ASK Q40]
No	02	[ASK Q41]
Not sure	03	[ASK Q41]
Refused	98	[ASK Q41]
Don't know	99	[ASK Q41]

39. *How satisfied are you with any savings you noticed on your electric bill since installing your new [MEASURE\_GENERIC]/removing your old [APPLIANCE]? Would you say you were:*

Very dissatisfied	01
Somewhat dissatisfied	02
Neither satisfied nor dissatisfied	03
Somewhat satisfied	04
Very satisfied	05
Refused	98
Don't know	99

39. *Using a scale of 01 to 05 where 01 is very dissatisfied and 05 is very satisfied, Using a scale of 1 to 5 where:*

Very dissatisfied	01
Somewhat dissatisfied	02
Neither satisfied nor dissatisfied	03
Somewhat satisfied	04
Very satisfied	05

*please tell me how satisfied you are overall with the (name of EDC) Community Connections Program?*

\_\_\_\_\_ [ENTER 01 TO 05]

40. *Why do you give it that rating? [RECORD VERBATIM RESPONSE]*

41. Do you have any suggestions for improving the program?

Yes	01	
No	02	SKIP TO Q45

42. What suggestions do you have for improving the program?

[RECORD VERBATIM RESPONSE:]

## HOME DEMOGRAPHICS

*I'd like to finish up by asking you some questions about your home.*

43. Which of the following best describes your home? [READ LIST: OPTIONS 01-07]

Single-family home, detached construction	01
Single-family home, factory manufactured/modular	02
Mobile home	03
Row house	04
Two or Three family attached residence	05
Apartment with 4+ families	06
Condominium	07
Other	08
Don't Know	98
Refused	99

Specify Other: \_\_\_\_\_

44. Do you own or rent this residence?

Own	01
Rent	02
Don't Know	98
Refused	99

45. Approximately when was your home built? [DO NOT READ RESPONSE OPTIONS]

Before 1960	01
1960-1969	02
1970-1979	03
1980-1989	04

1990-1999	05
2000-2005	06
2006 or Later	07
Don't know	98
Refused	99

46. *How many square feet is the above-ground living space?*

Square Feet: _____	
Don't know	98
Refused	99

[ASK Q49 IF Q48 = 98 OR 99]

47. *Would you estimate the above-ground living space is about:*

Less than 1,000 square feet	01
1000-2000 square feet	02
2000-3000 square feet	03
3000-4000 square feet	04
4000-5000 square feet	05
Greater than 5000 square feet	06
Don't know	98
Refused	99

48. *How many square feet of below-ground living space is heated or air conditioned?*

Square Feet: _____	
Does not apply	88
Don't know	98
Refused	99

[ASK Q51 IF Q50 = 98 OR 99]

49. *Would you estimate the below-ground living space is about:*

Less than 1,000 square feet	01
1000-2000 square feet	02
2000-3000 square feet	03
3000-4000 square feet	04
4000-5000 square feet	05
Greater than 5000 square feet	06
Don't know	98
Refused	99



*That's all the questions I have. Thank you for your time.*  
*You will receive your gift card within the next 30 days. Do you have any questions?*  
*OK. Good bye*

## ***2012 Community Action Agency Interview Guide***

### ***The Companies OH***

### ***Community Action Agency Guide***

#### ***Interview Guide Format***

This interview guide is for Community Action Agencies who work with The Companies customers to provide services.

First, the guide summarizes the key researchable issues that the interviews will explore. This is followed by the specific questions that will be asked of the agencies.

Because senior staff will be conducting interviews, interviews will be semi-structured. Therefore, the following interview protocol is only a guide to ensure certain topics are covered, but evaluators will follow the flow of the interview and modify questions as needed to fit the interviewee's circumstance.

#### ***Overarching Key Researchable ISSUES***

- How effective is the collaboration between The Companies and your agency?
- How effective is the interaction between OP&A and your agency?
- How well is the Community Connections program working? How could it be improved?
- Does the agency have any concerns about program implementation and its role in the program?
- What are the needs of the participants that could be further met through the Community Connections program? Should additional measures be considered?
- Do community action agencies feel they have sufficient staffing resources to deliver the program?
- Is the training to agencies sufficient? If not, what training and education support can be provided?
- Are there any groups not reached by the Community Connections program that also have financial and weatherization needs?

### ***Introduction***

My name is \_\_\_\_\_, with Tetra Tech. We are working with ADM Associates to evaluate the Community Connections program sponsored by The Companies.

The study will provide recommendations on how the utilities can improve the program for you and your customers. I would like to ask you some questions about your experience with the program. Your feedback on the program is extremely valuable as The Companies wants to improve your experience and satisfaction with the program as well as your customers. This interview should take approximately 15 minutes of your time. May we take some time now to do the interview? (If no, when would be a convenient time?)

(IF NECESSARY) I want to assure you that all of your responses and information about your company will be kept confidential and will not be reported individually by your name or businesses' name.

**NAME:** \_\_\_\_\_  
**COMPANY:** \_\_\_\_\_  
**TITLE:** \_\_\_\_\_  
**PHONE:** \_\_\_\_\_  
**INTERVIEWER:** \_\_\_\_\_  
**DATE COMPLETED:** \_\_\_\_\_ **LENGTH:** \_\_\_\_\_

### ***Introduction and background***

- A1) How many of your agency's staff members are currently working on the Community Connection Program? On average, what percentage of staff members' time is spent working on the program?
- A2) What is the primary service that your agency provides to the community?

### ***Role in community connections Implementation***

- B1) What services has your agency provided in the Community Connections program so far? (Probe for providing audits, installing measures, etc.) What is the process for getting clients through the program?

- B2) What concerns do you or your staff have about the kinds of jobs that The Companies has asked you to do in the Community Connections program? (Be specific about CFL installations, refrigerator and freezer replacements, air sealing jobs, providing customers with energy education, and providing roof and electrical repairs.) What could be done to alleviate these concerns?
- B3) What impact has the program had on your operations? (probe for impact on staff, resources, and time to process applications)
- B4) What training have you received? Who provided this training? Was it sufficient? If no, what was missing?
- B5) Did you receive communications regarding the measures and requirements for the program? Who provided this information? Was this communication adequate? [IF NO], What could have been done to communicate the requirements to you more effectively?
- B6) How is the agency interacting with the OPAE? Are interactions running smoothly? Do you have suggestions for improvement?
- B7) How do you communicate completed jobs? What is the system used for invoicing and tracking of progress toward job completion? How are completed jobs documented? How does this system compare to other systems you currently use?
- B8) Did your agency have to change its tracking procedures when you started working with the The Companies program? (IF YES), How so?
- B9) What impact does The Companies paperwork requirements have on your organization? [IF THERE IS ANY LEVEL OF DISSATISFACTION, ASK: Is there anything The Companies can do to improve the process?]

- B10) Do your staff report experiencing any difficulties in installing any of the measures required by the Community Connections program? If so, what difficulties do they experience and how does it affect the installation rate?
- B11) Are you working with any other Ohio utilities? (IF YES) Which ones? How do their programs compare to The Companies's program? (PROBE FOR PROS AND CONS OF THESE OTHER PROGRAMS)
- B12) What other measures or services do you think would be useful to consider for the Community Connection's program? (Probe for additional types of measures, deeper education, etc.)
- B13) Are there any groups not reached by the Community Connections program that also have financial and weatherization needs? Do you have ideas on how best to reach these groups?

***Customer Feedback***

- C1) What feedback have you received from customers (positive and negative)? Do they have any suggestions for improving the program? [Probe for measure specific feedback]

***Wrap-up***

- W1) Those are all the questions I have for you. Do you have anything else you want to mention to me in regards to the program?

**Thank you for your time. This completes our interview.**

## 2012 Community Connections Program Contractor Survey

EDC	Code
Illuminating Company	1
Ohio Edison	2
Toledo Edison	3

A1 *Hello, my name is (interviewer name), and I am calling on behalf of (name of EDC), your electric utility company. May I speak with (name of respondent)?*

Yes 01

No 02 [IF NOT AVAILABLE, ASK FOR ANOTHER EMPLOYEE FAMILIAR  
WITH COMPANY'S PARTICIPATION IN COMMUNITY  
CONNECTIONS PROGRAM]

A2 *I'm with ADM Associates, an independent research firm. We are speaking with contractors that participated in the (name of EDC's) Community Connections Program.*

*Through this program you would have installed energy efficient light bulbs called compact fluorescent lights or CFLs for short; or you might have replaced a refrigerator or freezer with an energy efficient Energy Star refrigerator or freezer; or you might have completed electrical wiring or roof repairs. Do you recall participating in this program?*

Yes 01 [SKIP TO A6]

No 02

Don't Know 98

Refused 99 [THANK AND TERMINATE]

## THE INTERVIEW

**Name of Contractor:** \_\_\_\_\_

**Name of Respondent:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_

*1. What factors influenced your decision to participate in the program?*

a.

b.

c.

d.

*2. Of these factors which one would you consider to be the most influential?*

a.

*3. What types of retrofit jobs did you complete with Program customers in 2012?*

a.

b.

c.

*4. Were there any additional job types that were started but not completed during 2012?*

Yes 01

No 02

Don't Know 98

Refused 99

*5. What type of jobs were started but not completed in 2012?*

a.

b.

c.

d.

- a.
6. Was it necessary to increase your company's work force to perform measure installs created by the Community Connections t Program?
  - a. Yes
  - b. No
7. If so, by what percentage would you say your work force increased?
  - a. 1-25 Percent
  - b. 26-50 Percent
  - c. 51-75 Percent
  - d. 76-100 Percent
8. Please describe your agencies interaction with program participants. [RECORD VERBATIM RESPONSE]
9. If any, what type of energy education did your agency provide to program participants. [RECORD VERBATIM RESPONSE]

Using a scale of 1 to 5 where:

Very dissatisfied	01
Somewhat dissatisfied	02
Neither satisfied nor dissatisfied	03
Somewhat satisfied	04
Very satisfied	05

please tell me how satisfied you are with the Community Connections Program.

\_\_\_\_\_ [ENTER 0 TO 5]

10. Do you have any issues or concerns with your role in the Community Connections Program? [RECORD VERBATIM RESPONSE]
11. Do you believe OPAE provided sufficient training to your agency? [RECORD VERBATIM RESPONSE]



12. Please describe your experience communicating with \_\_\_\_\_(EDC). [RECORD VERBATIM RESPONSE]

13. Please describe your experience communicating with OP&E. [RECORD VERBATIM RESPONSE]

14. If any, what areas are in need of program improvement? [RECORD VERBATIM RESPONSE]

*That's all the questions I have. Thank you for your time. Good bye.*

## **2012 Program Staff Interview Guide**

### **Program Staff and Implementation Staff Interview Guide** *The Companies Ohio staff, OPAE Staff, JACO Environmental Staff*

#### **Interview Objectives:**

- How effective have the marketing efforts worked for the program? Which marketing methods have proven to be the most effective?
- How effectively have managers been able to monitor and administer the program?
- What were the issues and concerns about implementing the program in 2011? What issues remain unresolved?
- What were the lessons learned in implementing the program in 2011?
- How well has the team (i.e., The Companies staff and Implementation staff) worked together? Characterize internal program management and operations including communications, staffing and marketing.
- What changes, with regard to programs design or delivery, should the program implement in order to improve effectiveness? Understand program design process, program launch and programs' key challenges. Understand the programs service offerings, the types of customers participating and not participating, and role of trade allies and implementation contractors.

#### **A. Describe your role with the programs in Ohio.**

- a. What are your responsibilities and roles in this/these programs?
- b. When became involved in the program
- c. (If The Companies Staff) Responsibilities and roles within The Companies and, specifically, for energy efficiency
- d. (If The Companies Staff) Any previous experience with energy efficiency
- e. (If OPAE staff) Responsibilities and roles within the program
- f. (If JACO staff) Responsibilities and roles within the program

#### **B. Who do you interact with directly as part of this program? (Examples listed below)**

- a. Trade allies?
- b. Program manager/implementation contractor?

- c. Customers?
- d. Public Utilities Commission and advocacy groups?
- e. Statewide Evaluator?
- f. Others?

### **C. Program Planning and Design**

- a. How were you involved in the program planning and design, if at all? How does the Ohio iteration of the program differ from the Pennsylvania program offering?
- b. How were the program's goals set? How are these goals communicated both internally and externally? Are the goals set by territory?
- c. How will program progress toward goals be monitored and reported to the utility? How is the program doing in meeting these goals?
- d. What are the implications for the program of not meeting goals? What are the implications for oversubscribing?

### **D. Program Design**

- a. Could you please provide an update on the progress of the program? What barriers have you encountered since the programs' launch? What are key successes from the programs' launch?
- b. Please provide an overview of the program, including measures recycled and incentive strategy.
- c. What are the target markets for the program? Any specific residential/commercial sectors?
- d. [if Appliance Turn-in program] Do the incentive levels seem appropriate? If not, why do you think that? What, if any, changes in the incentive levels do you think may be needed?

### **E. Program Operations**

- a. What are the participation steps from the customer's perspective?  
  
[if Appliance Turn-in program] How long does it take before the customer's appliance is picked up? How long does it take before the customer receives the rebate check?  
  
[if Community Connections program] How long does it take for customers to get program services?

- b. What parties are involved in administering and/or serving customers through the program? (Probe for trade allies, implementation contractors, etc.) What do they do?
- c. Describe your communications and working relationship with trade allies/action agencies. (If not revealed above, distinguish between the different trade ally groups involved.)
- d. What support is provided through the program to trade allies/action agencies? In what areas could this be improved?
- e. Have you received compliments or criticisms from participants? What are the typical topics brought up?
- f. What type of quality control measures are in place for the program or are planned? What percentage of projects will receive QC? What types of problems are most common (if any QC has been performed yet)?
- g. What do you see as future challenges to the program?

#### **F. Program Operations and Management**

- a. Do you feel there are sufficient resources to effectively operate and manage the programs? If no, what additional resources are needed overall (by program)?
- b. How is program information communicated internally (or planned to be communicated) within The Companies? Do you feel the correct mechanisms are in place for internal program information dissemination? Probe about any improvements needed or plans in place.
- c. How often are progress reports generated on program performance? Who is responsible for this?
- d. What additional reporting is required (type and dates)?
- e. (If The Companies Staff) How effectively have program managers been able to monitor and administer the program? Are you confident in the information and data reported to you by the program administrator/implementer? Are additional QA/QC controls required to improve confidence (if applicable)? What additional information or data would be useful?
- f. (If OPAE Staff) How effectively have program managers been able to monitor and administer the program? Are you confident in the information and data reported to you by the program administrator/implementer? Are additional QA/QC monitoring controls required to improve confidence (if applicable)? What additional information or data would be useful?
- g. What aspects of the program operations and management are working well or are expected to work well? Which are not working well or may be a concern?
- h. What do you see as challenges to the programs' operations and management?
- i. What implementation issues in 2011 remain unresolved and why?

- j. What were the lessons learned in implementing the program in 2011?

### **G. Program Marketing and Outreach**

- a. What overall marketing activities are being or will be used to reach the different target markets? Who conducts these? Have you noticed changes in participation levels relative to the release of each marketing effort? Do you feel that a specific type of effort works better than others?
- b. How effective do you feel each of these methods has been in identifying and enrolling potential participants? Why?
- c. How are the programs using or will the programs use the trade ally infrastructure (e.g., retailers of new appliances)? Do trade allies opt in and 'participate' in the program? How do you define a participating trade ally? Probe about any specific needs such as training, cooperative advertising, sales tools, etc.
- d. How will program information be communicated to trade allies and other external stakeholders? Probe about any improvements needed.
- e. What are major barriers to participation (both customers and trade allies)?
- f. Why do you think some choose to participate or not participate?
- g. Are there any specific types of customers/trade allies/stakeholders that face more barriers than others (e.g., retailers or low income customers)?

### **H. Conclusion**

- a. Is there anything we haven't covered today that we should be aware of when evaluating the program?
- b. If I have any additional questions, can I call you or email you my questions? (Confirm contact information)